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Water Supply Outlook For Oregon



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

OREGON DEPARTMENT OF WATER RESOURCES

AS OF
JAN. 1, 1980

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: THE SNOTEL PROJECT CENTRAL COMPUTER FACILITIES IN PORTLAND, OREGON. THE TERMINAL, PRINTER, COMPUTER AND TAPE DRIVES HAVE NOT COMPLETELY REPLACED THE SNOW SAMPLING TUBES SEEN IN THE FOREGROUND.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR OREGON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued

JANUARY 1, 1980

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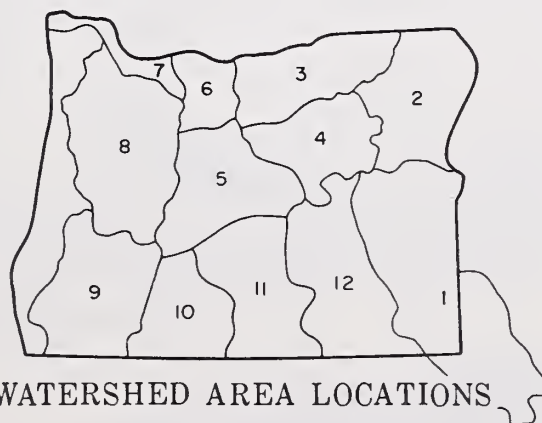
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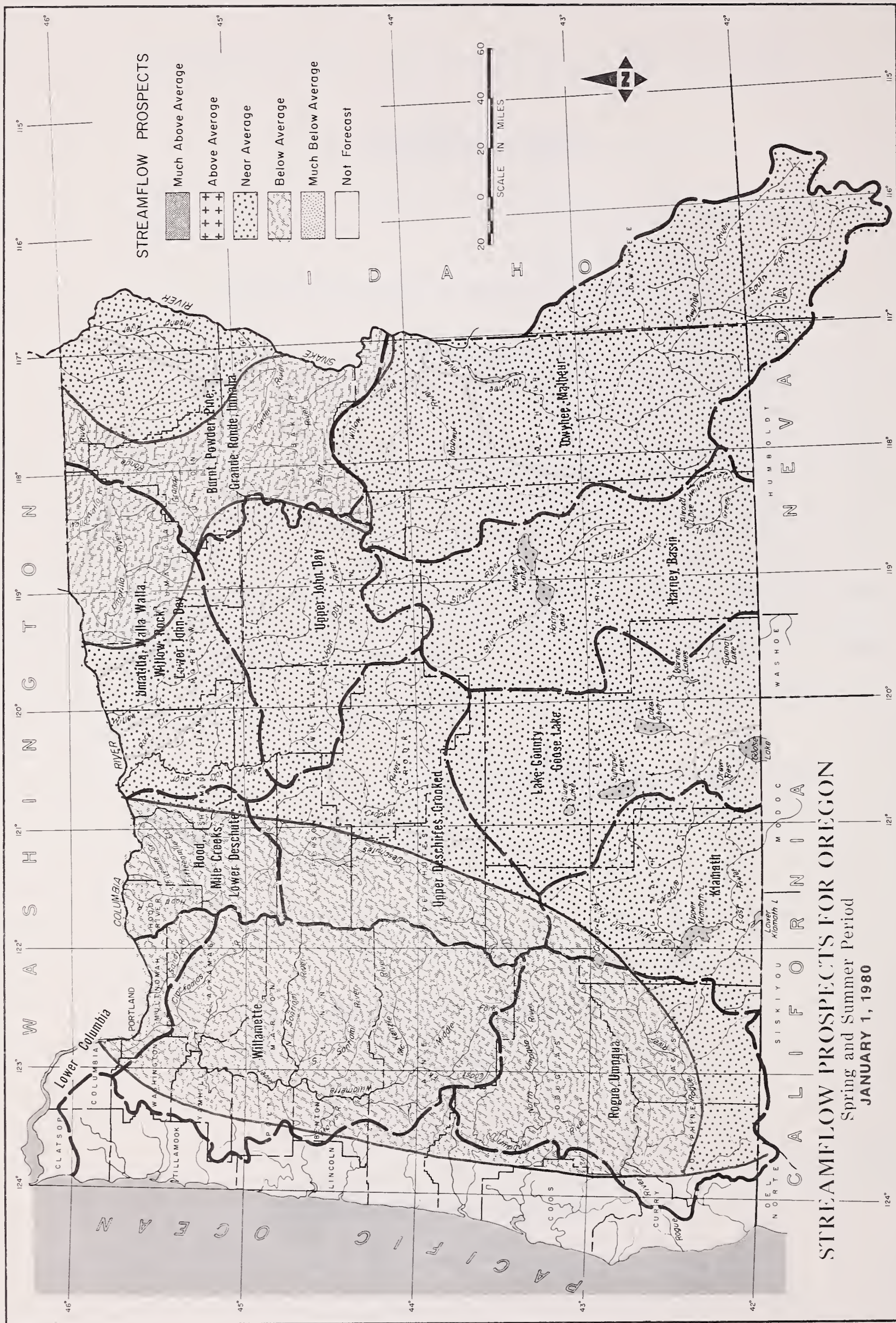
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WATER SUPPLY OUTLOOK AND SUMMARY FOR OREGON

JANUARY 1, 1980

*The Oregon water supply prospects for next summer are below average for *
much of the state which drains from the Cascades. In addition the areas
which receive runoff from the Blue Mountains near Pendleton and LaGrande
*are also facing below normal supplies. The rest of the state should *
*have near average supplies of water. *

SNOW COVER

The early season snowpack is poor over much of the state. This is the fourth year in a row for a much below normal snowpack in the Cascades where it ranges from 90% at the highest elevations down to 30 and 40% at the median elevations and below. The Blue Mountains near Pendleton also have a poor snowpack. The snow cover over the rest of the state is near normal to slightly below. Normally about one-third of the winter's snow is on the ground by January 1 which leaves two-thirds yet to come. This means most of our winter's snow will be received over the next three months.

PRECIPITATION

Winter precipitation (Nov.-Dec.) has been less than normal over the whole state. It ranged from 60 to 80% over most of Oregon except for Lake and Harney counties where it was near 90% of average. These figures are reflected in the poor snow cover that exists in many of the mountain watersheds.

RESERVOIR STORAGE

Storage is below average in most of the major irrigation reservoirs. Twenty-one of these reservoirs are storing 1,410,000 acre feet of water as of January 1. This is 87% of average. Irrigation reservoirs that are storing above average amounts include Owyhee, Phillips Lake, and Howard Prairie.

STREAMFLOW

Oregon streamflow for the water year to date has been below average. Streams produced volumes about two-thirds of normal during December.

STREAMFLOW (CONT.)

Forecasts of representative Oregon streams are as follows:

<u>STREAM</u>	<u>PERIOD</u>	<u>FORECAST</u> <u>% of 1963-77 AVG.</u>
Owyhee net Inflow	Feb.-July	88
Malheur nr. Drewsey	Feb.-July	108
Deschutes @ Benham Falls	Apr.-Sept.	85
Grande Ronde @ LaGrande	Mar.-Sept.	82
Willamette Mid. Fk. nr. Oakridge	Apr.-July	82
Upper Klamath Lake net Inflow	Apr.-Sept.	101
Rogue nr. Raygold	Apr.-Sept.	85
Silvies nr. Burns	Mar.-July	104

It should be noted that these forecasts are based on receiving normal weather conditions (100% of average snow and precipitation) from now until the end of the forecast period. If the below normal precipitation trend continues during the winter, the percentages forecast will drop accordingly.

The forecasts in this bulletin are a result of coordinated activity between the Soil Conservation Service and the National Weather Service as an effort to provide the best possible service to water users.

This report contains data furnished by the Oregon Department of Water Resources, U.S. Geological Survey, NOAA National Weather Service and other cooperators.

GENERAL OUTLOOK

Water supplies should be near normal next summer. The snowpack is near average in most of Malheur County. The snow cover in the Nevada portion of the Owyhee drainage is below average, however the Jordan Creek tributary in Idaho is much above. Reservoir storage is close to normal.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Bully Creek at Warm Springs	12.7	101	Mar.-May		12.6 ^b
Malheur near Drewsey	116	108	Feb.-July		107
	75	103	Apr.-Sept.		73
Malheur, North Fork at Beulah	72	88	Feb.-July		82
	60	90	Apr.-Sept.		67
Owyhee Reservoir net Inflow	511	88	Feb.-July		578
	353	90	Apr.-Sept.		392
Owyhee at Rome	535	90	Feb.-July		596 ^b

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Owyhee near Rome	Note: Forecasts begin on February 1, 1980		

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Beulah Reservoir	60.0	13.7	11.0	19.4
Bully Creek	30.0	11.0	8.6	10.4
Owyhee	715.0	459.4	452.3	372.8
Warm Springs	191.0	71.2	67.9	77.5

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Jordan Creek	2	150	135
Malheur	4	100	107
Owyhee River	5	90	90

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

GENERAL OUTLOOK

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STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	PERIOD	Last Year Average ^C
Anthony Creek blw. North Fork nr. No. Powder	**			
Bear near Wallowa	55	85	Apr.-Sept.	65
Big Creek blw. Burn Creek nr. Medical Spring	**			
Burnt near Hereford	44	88	Feb.-July	50
	32	88	Apr.-Sept.	36
Catherine near Union	56	88	Apr.-Sept.	64
Deer Creek abv. Phillips Res. nr. Sumpter	**			
Eagle Creek abv. Skull Creek	149	88	Apr.-July	169
	164	89	Apr.-Sept.	184
Grande Ronde at La Grande	164	82	Mar.-Sept.	199
	129	80	Apr.-Sept.	161
Hurricane near Joseph	46	100	Apr.-Sept.	46
Imnaha at Imnaha	287	94	Apr.-Sept.	305
Lostine near Lostine	118	96	Apr.-Sept.	123
Pine Creek nr. Oxbow	**			
Powder near Sumpter	48	84	Apr.-July	57
	50	86	Apr.-Sept.	58
Wallowa, East Fork near Joseph	12.9	101	Feb.-Sept.	12.8
	11.5	100	Apr.-Sept.	11.5
Wallowa at Joseph *	69	100	May-July	69
Wolf Creek Res. net Inflow	**			
** Will begin forecasting these next month.				

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^C
Phillips Lake	73.5	40.0	42.9	35.7 ^b
Thief Valley	17.4	N/R	--	15.4 ^b
Unity	25.2	7.5	9.1	9.3
Wallowa Lake	37.5	14.0	29.9	20.0
Wolf Creek	10.4	3.4	5.8	--

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^C
Burnt River	3	92	84
Grande Ronde River above La Grande	5	52	58
Powder River	2	85	77
Wallowa, Imnaha, Catherine Creek	--	--	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK

UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

OREGON

GENERAL OUTLOOK

A below average water supply potential exists for Umatilla county. Morrow county should have near average supplies as the snowpack at Arbuckle Mountain is very good. Snow cover on the Umatilla portions of the Blues is poor. Reservoir storage is close to the January 1 average.

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STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Butter nr. Pine City	10.7	100	Mar.-July		10.7
Couse Creek nr. Milton Freewater	**				
McKay near Pilot Rock	16.5	75	Apr.-Sept.		22
Pine Creek near Weston	**				
Rhea Creek nr. Heppner	**				
Rock Creek abv. Cayuse Canyon nr. Condon	**				
Umatilla near Gibbon	83	84	Mar.-Sept.		99
	64	82	Apr.-Sept.		78
Umatilla at Pendleton	173	85	Mar.-Sept.		204
Walla Walla, South Fork near Milton	76	93	Mar.-Sept.		82
	64	93	Apr.-Sept.		69
Willow Creek at Heppner	**				
** Will begin forecasting these next month.					

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Umatilla at Pendleton	Note: Forecasts will begin on February 1, 1980		

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Cold Springs	50.0	18.6	15.1	17.9
McKay	73.8	19.6	27.4	20.9

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
McKay Creek	2	19	30
Umatilla River	3	42	59
Walla Walla River	2	49	67

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Camas Creek near Ukiah	42	100	Mar.-July		42
	34	100	Apr.-Sept.		34
John. Day, Middle Fork at Ritter	139	108	Mar.-July		133
	117	108	Apr.-Sept.		113
John Day, North Fork at Monument	575	90	Mar.-July		639
	487	90	Apr.-Sept.		541
Mountain Creek nr. Mitchell	**				
Strawberry near Prairie City	7.0	96	Mar.-July		7.3
	7.3	95	Apr.-Sept.		7.7

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
John Day, North Fork	4	77	102
John Day abv. Dayville	3	98	108

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

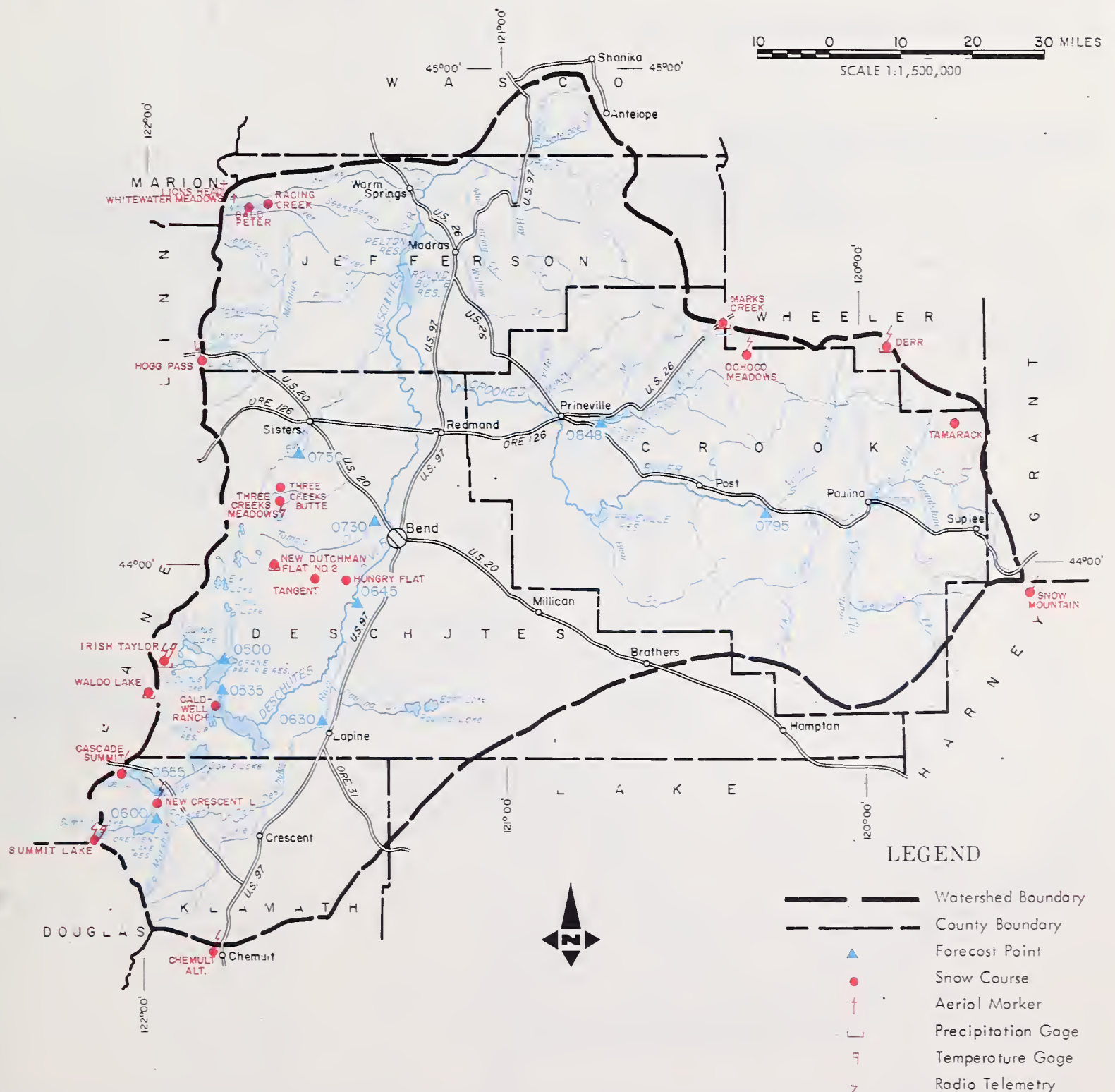
WATER SUPPLY OUTLOOK

UPPER DESCHUTES, CROOKED WATERSHEDS

OREGON

GENERAL OUTLOOK

The Deschutes basin has the potential for below average water supplies next summer. The Crooked River portion would be an exception where average supplies will probably be available. The Cascades have an extremely poor snowpack for the fourth year in a row. Early season snow survey data is not available for the Crooked River. Reservoir storage is below average on the Upper Deschutes and near normal on the Crooked River.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Beaver Creek near Paulina	39	100	Feb.-July		39
	16.1	100	Apr.-Sept.		16.1
Crane Prairie Reservoir total Inflow	102	85	Apr.-Sept.		120
Crescent at Crescent Lake	16.0	80	Mar.-July		20
	17.6	80	Apr.-Sept.		22
Crooked River nr. Prineville	161	100	Feb.-July		161
	90	100	Apr.-Sept.		90
Crooked R., No.Fk. blw. Lookout Cr. nr. Paulina	**				
Deschutes at Benham Falls	410	85	Apr.-July		483
	619	85	Apr.-Sept.		728
Deschutes below Snow Creek	64	85	Feb.-Sept.		75
	52	82	Apr.-Sept.		63
Deschutes, Little near La Pine	82	80	Feb.-July		102
	59	80	Apr.-July		74
Ochoco Reservoir net Inflow	29	100	Feb.-July		29
	16	100	Apr.-Sept.		16
Squaw near Sisters	42	85	Apr.-Sept.		49
Tumalo near Bend	40	88	Apr.-Sept.		45
** Will begin forecasting this next month.					

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Crane Prairie net Inflow	Note: Forecasts will begin on February 1, 1980.		
Crooked R. near Post			
Deschutes at Bend			
Little Deschutes near LaPine			

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Crane Prairie	55.3	17.5	29.1	41.2
Crescent Lake	86.9	21.9	38.2	51.9
Ochoco	47.5	22.0	28.1	20.6
Prineville	153.0	98.8	93.0	97.8
Wickiup	200.0	109.7	134.0	134.4

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Crooked, Ochoco	--	--	--
Deschutes abv. Wickiup	3	140	66
Little Deschutes	2	141	61
Tumalo & Squaw Crs.	2	183	80

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

GENERAL OUTLOOK

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SCALE 1:1,000,000



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Hood River near Hood River nr. Tucker Bridge	202	82	Apr.-July		247
	240	82	Apr.-Sept.		293
Hood, West Fork near Dee	102	80	Apr.-July		127
	119	80	Apr.-Sept.		149
White below Tygh Valley	88	77	Apr.-July		114
	99	77	Apr.-Sept.		129

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Clear Branch Inflow	Note: Forecasts will begin on February 1, 1980.		

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Clear Lake (Wasco)	11.9	N/R	0.1	3.9

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Hood River	3	123	70
Mile Creek	--	--	--
White River	3	123	70

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

Flows in the Lower Columbia should be less than normal this next summer. The winter precipitation above The Dalles (Oct.-Dec.) was 81% of average. The snow cover in Washington, Idaho, Montana and Oregon is below to much below average.



SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average c
Sandy River	2	123	74

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acres Feet	Percent of Average		Last Year	Average c
Columbia at The Dalles	71,800	81	April-July		88,520
	83,900	81	April-Sept.		103,490
Sandy River near Marmot	296	90	Apr.-July		329
	345	90	Apr.-Sept.		384

HISTORICAL DATA (Columbia River at The Dalles)

YEAR	STREAMFLOW ^d (1,000 A.F.)			REGULATED PEAK (1,000 cfs)	DATE
	APR - SEPT.	APR - JUNE	MAY - JUNE		
1963	87,000	56,300	46,200	437	June 18
1964	109,020	70,739	61,313	662	June 18
1965	114,137	80,024	62,477	520	June 9
1966	87,268	58,120	45,922	396	June 12
1967	107,771	72,408	65,112	622	June 10
1968	89,000	55,500	47,900	404	June 13
1969	112,300	85,700	63,800	515	May 15
1970	88,100	62,800	55,200	425	May 28
1971	122,900	88,400	73,700	557	May 13
1972	134,700	96,400	81,400	619	June 20
1973	65,360	43,600	36,500	208	April 3
1974	139,430	98,930	78,940	588	June 20
1975	108,900	73,010	62,910	423	May 17
1976	120,640	77,320	61,200	419	May 14
1977	54,090	35,520	28,290	183	May 27
1963-77 Avg.	103,490	71,240	58,720	465	

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)

VANCOUVER GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32 (1972)	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	943	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	897	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	853	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	811	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	771	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	733	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	697	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	662	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	628	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	595	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20 (1954)	564	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	534	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	501	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	479	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	452	22.4	16.5	15.5	13.0	10.5	9.3	8.7

WATER SUPPLY OUTLOOK
WILLAMETTE WATERSHEDS
OREGON
GENERAL OUTLOOK

Streamflow should be below normal next summer. The Cascades have an extremely poor snowpack for the fourth year in a row.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average C
Clackamas at Estacada	547	82	Apr.-July		667
	641	82	Apr.-Sept.		782
Clackamas above Three Lynx	435	86	Apr.-July		506
	518	86	Apr.-Sept.		603
McKenzie at McKenzie Bridge	366	81	Apr.-July		452
	484	81	Apr.-Sept.		598
McKenzie near Vida	819	80	Apr.-July		1024
	1007	80	Apr.-Sept.		1259
McKenzie, So. Fork near Rainbow	174	84	Apr.-July		207
	196	84	Apr.-Sept.		234
Oak Grove Fork above Power Intake	119	90	Apr.-July		132
	151	90	Apr.-Sept.		168
Row near Dorena	88	90	Apr.-July		98
	94	90	Apr.-Sept.		104
Santiam, North at Mehama	609	81	Apr.-July		752
	697	81	Apr.-Sept.		860
Santiam, South at Waterloo	438	80	Apr.-July		547
	472	80	Apr.-Sept.		590
Scoggins Creek nr. Gaston	**				
Thomas Creek nr. Scio	**				
Willamette, Coast Fork nr. London	**				
Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	498	82	Apr.-July		607
	644	82	Apr.-Sept.		786
Willamette, No. Fk. of Mid. Fk. near Oakridge	150	80	Apr.-July		188
	167	80	Apr.-Sept.		209
Willamette at Salem	3664	78	Apr.-Sept.		4697
** Will begin forecasting these next month.					

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average C
Clackamas River	2	71	33
McKenzie River	3	58	35
Row River	2	102	30
Santiam River	4	48	25
Willamette, Mid. Fk.	3	84	36

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average C
Blue River	85.6*	0.2	0.5	1.1 ^b
Cottage Grove	30.0*	0.3	0	1.2
Cougar	155.2*	0	0	12.0 ^b
Detroit	299.9*	5.0	0	31.6
Dorena	70.5*	0.4	0	4.4
Fall Creek	115.0*	0.9	0	0.0 ^b
Fern Ridge	94.2*	0.9	0	8.2 ^b
Foster	30.0*	1.0	0.8	0.5 ^b
Green Peter	270.0*	6.5	12.9	22.5 ^b
Hills Creek	200.0*	0.4	0	14.5
Lookout Point	337.2*	6.1	0	29.2
Timothy Lake	61.7	29.4	30.7	52.4
Henry Hagg Lake	53.0	28.7	27.5	--
* Multiple purpose reservoir--space reserved primarily for flood runoff.				

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

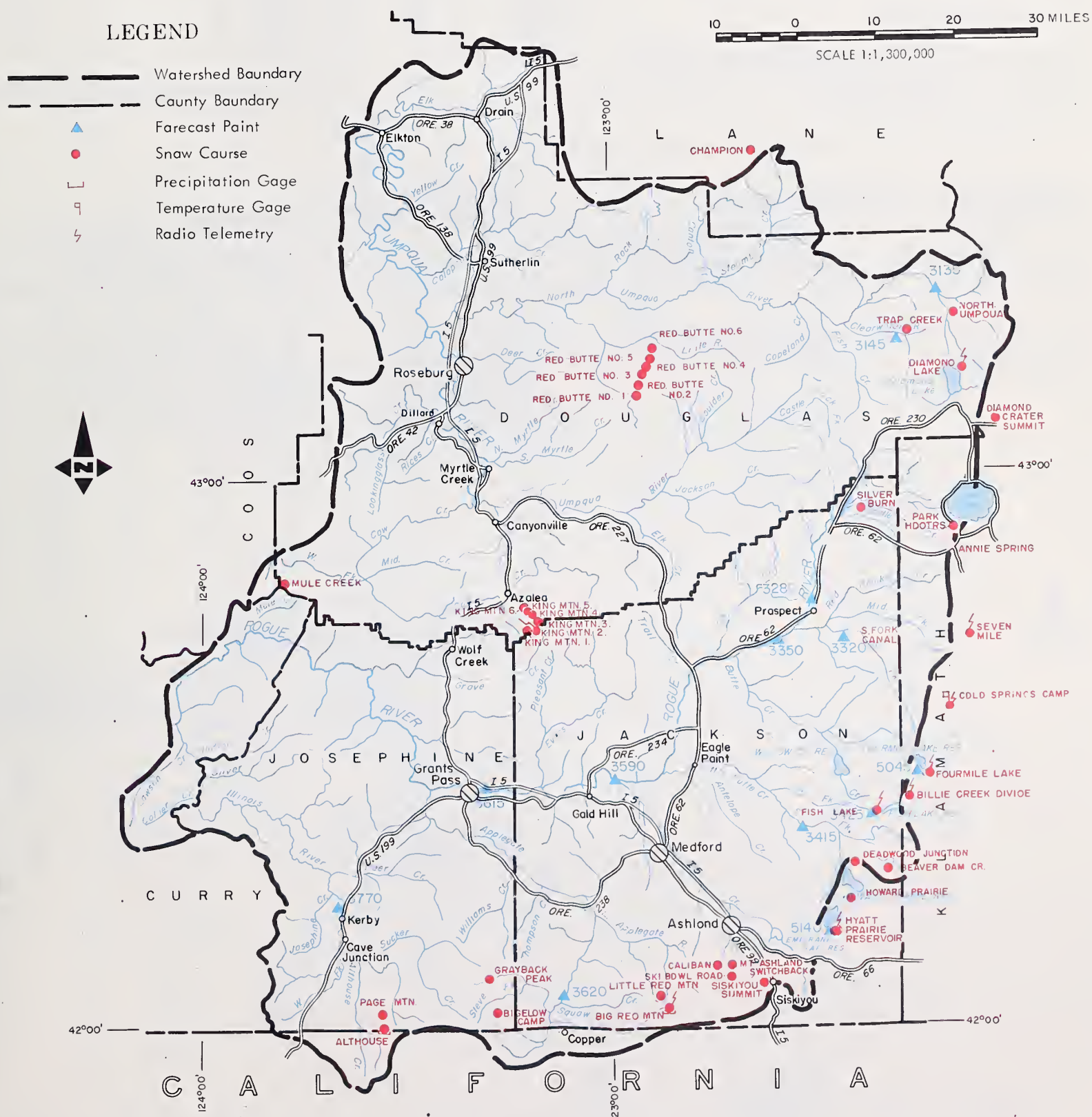
WATER SUPPLY OUTLOOK

ROGUE, UMPQUA, WATERSHEDS

OREGON

GENERAL OUTLOOK

Water supplies should be close to normal for most water users. The snowpack at low and median elevations is below normal now but two-thirds of our winter's snow falls during the next three months. The snowpack in the Siskiyou's is good. Reservoir storage is close to normal for this time of year except at Fourmile Lake where contents are 70% of average.



STREAMFLOW FORECASTS

STREAMFLOW FORECASTS	THIS YEAR			PAST RECORD	
BASIN, STREAM and/or FORECAST POINT	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Applegate near Copper	129	100	Apr.-Sept.		129
Clearwater above Trap Creek	69	97	Apr.-Sept.		71
Cow Creek nr. Azalea	**				
Elk Creek nr. Drew	**				
Fourmile Lake net Inflow	3.3	85	Apr.-Sept.		3.9
Grave Creek at Pease Bridge nr. Placer	**				
Hyatt Reservoir net Inflow	3.9	80	Apr.-July		4.9
Illinois River near Kerby	165	94	Apr.-July		176
	172	94	Apr.-Sept.		183
Little Butte, N. Fk. at Fish Lake nr. Lake Cr.	12.3	88	Apr.-Sept.		14.0
Little Butte, S. Fk. near Lake Creek	31	90	Apr.-Sept.		34
Red Blanket Creek nr. Prospect	**				
Rogue above Prospect	226	88	Apr.-July		257
Rogue, South Fork near Prospect	57	92	Apr.-July		62
	68	92	Apr.-Sept.		74
Rogue at Raygold near Central Point	643	85	Apr.-July		756
	781	85	Apr.-Sept.		919
Rogue at Grants Pass	638	84	Apr.-July		759
	823	84	Apr.-Sept.		908
Sucker Cr. Blw. Little Grayback nr. Holland	**				
Umpqua, No. blw. Lemolo Res. nr. Toketee Falls	148	87	Apr.-Sept.		170
Umpqua, So. near Tiller	**				
** Will begin forecasting these next month.					

FORECAST DATE of LOW FLOW VALUES

FORECAST POINT	Low Flow Value Second/Ft.	Forecast Date Stream Will Recede to Low Flow Value	Average Date of Low Flow Value
Little Butte Creek, South Fork	Note: Forecasts will begin on February 1, 1980.		
Rogue at Raygold			

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Emigrant Lake	39.0	16.2	20.1	18.9
Fish Lake	8.0	5.2	4.8	5.6
Fourmile Lake	16.1	6.2	6.0	9.0 ^b
Howard Prairie	60.0	48.6	33.2	41.7
Hyatt Prairie	16.1	11.4	9.7	10.9

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Applegate	--	--	--
Bear Creek	2	3000	94
Butte Creek	4	256	79
Illinois River	--	--	--
North Umpqua	3	102	41
Rogue River	2	173	60

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	FORECAST PERIOD	Last Year Average ^c
Clear Lake Reservoir Inflow	99	108	Feb.-July	92
Gerber Reservoir Inflow	45	110	Feb.-July	41
Sprague near Chiloquin	344	100	Feb.-Sept.	344
	242	100	Apr.-Sept.	242
Upper Klamath Lake net Inflow	886	101	Feb.-Sept.	877
	531	101	Apr.-Sept.	526
Williamson below Sprague River	612	103	Feb.-Sept.	594
	421	103	Apr.-Sept.	409

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Clear Lake	440.2	104.6	145.1	203.2
Gerber	94.0	15.2	29.9	46.0
Upper Klamath Lake	584.0	302.1	307.2	350.7

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Lost River	2	535	126
Sprague River	2	943	157
Upper Klamath	5	284	82
Williamson River	3	259	74

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Chewaucan near Paisley	96	109	Mar.-July		88
Cottonwood Creek nr. Lakeview	**				
Deep above Adel	85	106	Mar.-July		80
Drews Reservoir net Inflow	43	105	Mar.-July		41
Honey Creek near Plush	23	110	Mar.-July		21
Silver Creek near Silver Lake	14.1	100	Apr.-July		14.1
Twentymile near Adel	29	110	Mar.-July		26
** Will begin forecasting this next month.					

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average ^c
Cottonwood	8.7	0.9	--	2.1 ^b
Drews	63.0	14.7	--	34.3
Thompson Valley	19.5	N/R	--	9.2 ^b

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

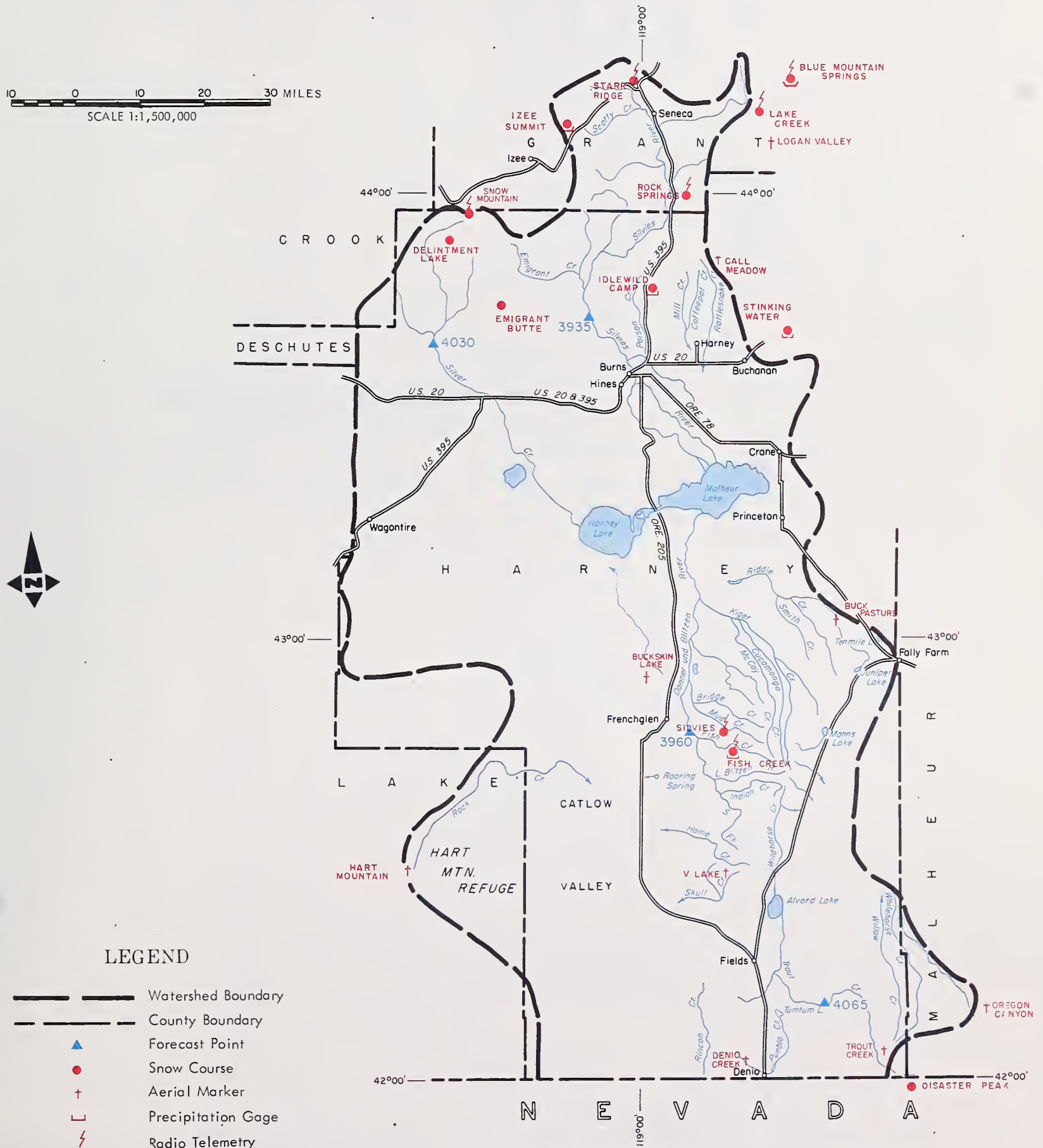
RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Chewaucan River	2	943	157
Deep Creek	2	359	128
Drew Creek	1	1333	174
Honey Creek	1	253	126
Silver Creek	2	600	124
Twentymile Creek	--	--	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

GENERAL OUTLOOK

Harney county should have good water supplies next summer. The snow cover is above average on the Silvies and SNOTEL readings at the automated sites in the Steens indicate a near average snowpack for the Donner und Blitzen.



STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR			PAST RECORD	
	FORECAST		FORECAST PERIOD	THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average		Last Year	Average ^c
Donner und Blitzen near Frenchglen	62	105	Mar.-July		59
	60	105	Apr.-Sept.		57
Silver near Riley	15.8	100	Apr.-July		15.8
Silvies River near Burns	100	104	Mar.-July		96
	80	104	Apr.-Sept.		77
Trout Creek near Denio	10.2	110	Mar.-July		9.3

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average ^c
Donner und Blitzen R.	1	333	133
Silver Creek	--	--	--
Silvies River	4	100	118
Trout Creek	--	--	--

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
OWYHEE, MALHEUR WATERSHEDS					
Antelope Ridge (Ida.)		e			
Battle Creek (Ida.) *		e			
Bear Creek (Nev.)		e		4.2	8.2b
Big Bend (Nev.)		e		3.4	3.2b
Blue Mountain Springs	1/2	24	5.6	6.1	6.5
Blue Mtn. Spgs. Plw.(T)	12/31	--	5.9	--	--
Blue Mtn. Spgs. Plw.(S)	1/2	24	6.0	6.0	6.6b
Blue Mtn. Spgs. Plw.(M)	1/2	--	4.9	6.2	5.4b
Boulder Creek *		e			
Buck Pasture *		e			
Buckskin, Lower (Nev.)		e			
Buckskin, Upper (Nev.)		e			
Bull Basin (Ida.) *		e			
Bully Creek *		e			
Call Meadows *		e			
Columbia Basin (Nev.) *		e			
Disaster Peak (Nev.)		e			
Eldorado Pass	12/27	13	1.6	1.8	2.0
Fawn Creek (Nev.)		e			
Fish Creek *		e			
Fish Creek		e			
Fish Creek Pillow(T)		e			
Fish Creek Pillow(S)		e			
Fish Creek Pillow(M)		e			
Flag Prairie *		e			
Fry Canyon (Nev.)	12/27	11	2.5	3.0	3.2
Gold Creek (Nev.)		e			1.9
Granite Peak (Nev.)		e			
Hyde Pasture (Ida.) *		e			
Jack Creek, Lower (Nev.)		e			
Jack Creek, Upper (Nev.)		e			2.5b
Jacks Peak (Nev.)		e			
Lake Creek R.S.	1/2	20	5.2	4.7	4.2
Lake Creek R.S. Plw.(T)	12/31	--	6.2	--	--
Lake Creek R.S. Plw.(S)	1/2	24	6.0	4.5	--
Lake Creek R.S. Plw.(M)	1/2	--	3.5	2.9	--
Laurel Draw (Nev.) *		e			
Logan Valley *		e			
Lookout Butte *		e			
Louse Canyon *		e			
Martin (Nev.)		e			
Merritt Mountain (Nev.) *		e			
Midas (Nev.) *		e			
Mud Flat (Ida.)		e			
Oregon Canyon *		e			
Quinn Ridge (Nev.) *		e			
Red Canyon (Ida.) *		e			
Rock Spring	1/4	13	3.4	3.2	2.1
Rock Spring Plw.(T)	----				
Rock Spring Plw.(S)	1/4	11	3.0	3.0	--
Rock Spring Plw.(M)	----			1.3	--
Rodeo Flat (Nev.)	12/27	8	2.0	2.7	2.8
76 Creek (Nev.)		e		4.2	6.4b
Silver City (Ida.)		e		5.2	5.8b
Silver City (Ida.) *		e			
Silvies *		e			
Silvies		e			
Silvies Pillow (T)		e			
Silvies Pillow (S)		e			
Silvies Pillow (M)		e			
South Mountain (Ida.)	12/29	21	6.6	4.6	4.6
South Mtn. #2 Plw.(T)	12/28	--	5.5	--	--
Stag Mountain (Nev.) *		e			
Stinking Water	12/28	14	2.0	0.6	1.5
Succor Creek (Ida.) *		e			
Taylor Canyon (Nev.)	12/27	4	0.6	2.7	2.0
Toe Jam (Nev.) *		e			
Tremewan Ranch (Nev.) *	12/27	1	0.1	0.6	1.0b
Trout Creek *		e			
"V" Lake *		e			
Vaught Ranch (Ida.) *		e			
War Eagle (Ida.) *		e			

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS					
Aneroid Lake #2		e			
Aneroid Lake #2 Plw.(S)		e			
Aneroid Lake #2 Plw.(M)		e			
Anthony Lake	12/27	28	8.0	8.7	11.1
Bald Mountain (OR) *		e			
Beaver Reservoir (Rev.)	12/27	16	3.2	3.5	5.4 ^b
Beaver Res. Pillow (S)	12/27	13	2.3	3.0	--
Beaver Res. Pillow (M)	----				
Bigelow Camp Pillow (S)		e			
Bigelow Camp Pillow (M)		e			
Big Sheep *		e			
Blue Mtn. Summit	12/26	15	3.2	3.3	3.5
Bourne		e			
Bourne Pillow (T)		e			
Bourne Pillow (S)		e			
Bourne Pillow (M)		e			
County Line	12/29	5	1.5	3.0	2.0
County Line Pillow (T)	----				
County Line Pillow (S)	12/29	2	0.4	2.7	--
County Line Pillow (M)	12/29	--	0.0	--	--
Dooley Mountain	12/28	15	3.4	2.7	3.8
Eilertson Meadows	12/26	20	4.2	4.5	4.5
Eilertson Mdws.Plw.(S)	12/26	20	4.1	4.3	--
Eilertson Mdws.Plw.(M)	12/26	--	2.2	--	--
Eldorado Pass	12/27	13	1.6	1.8	2.0
Gold Center	12/26	20	4.7	5.8	5.0 ^b
Gold Center Pillow (T)	----				
Gold Center Pillow (S)	12/26	16	3.8	5.0	--
Gold Center Pillow (M)	12/26	--	2.6	4.0	--
Goodrich Lake		e			
Little Alps	12/27	17	3.4	6.2	5.4
Little Antone	12/27	15	2.8	3.8	3.5 ^b
Little Antone (Alt.)	12/27	17	3.9	3.9	--
Lucky Strike	12/29	11	2.7	6.4	--
Lucky Strike Pillow (T)	12/29	--	1.5	--	--
Lucky Strike Pillow (S)	12/29	8	1.8	5.5	--
Lucky Strike Pillow (M)	12/29	--	0.6	6.5	--
Meacham	12/29	5	1.3	4.9	3.5
Mirror Lake *		e			
Moss Spring		e			
Moss Spring Pillow (T)		e			
Moss Spring Pillow (S)		e			
Moss Spring Pillow (M)		e			
Mt. Howard Pillow (S)		e			
Mt. Howard Pillow (M)		e			
Schneider Meadow		e			
Schneider Meadow Plw.(T)		e			
Schneider Meadow Plw.(S)		e			
Schneider Meadow Plw.(M)		e			
Schoolmarm	12/29	4	1.2	2.4	1.6
Standley *		e			
Taylor Green		e			
Taylor Green Pillow (T)		e			
Taylor Green Pillow (S)		e			
Taylor Green Pillow (M)		e			
Tipton	12/26	15	3.5	4.0	4.7
Tipton Pillow (T)	12/26	--	3.7	--	--
Tipton Pillow (S)	12/26	18	4.0	5.0	6.6 ^b
Tipton Pillow (M)	----				
Tollgate	12/29	26	7.6	12.6	9.9
TV Ridge *		e			
West Eagle Meadows *		e			
Wolf Creek Pillow (T)		e			
Wolf Creek Pillow (S)		e			
Wolf Creek Pillow (M)		e			
* Aerial N/R No Report TR Trace T = Telemetry Measurement S = Snow Tube Measurement M = Manometer Measurement					

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. C
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS					
Arbuckle Mountain	12/29	14	3.3	5.4	1.5 ^b
Arbuckle Mtn. Plw.(T)	12/29	--	7.1	--	--
Arbuckle Mtn. Plw.(S)	12/29	26	6.6	7.0	--
Arbuckle Mtn. Plw.(M)	12/29	--	8.2	5.8	--
Blue Mountain Camp	12/29	9	3.2	9.3	6.2
Bowman Springs Plw.(T)	12/29	--	3.3	--	--
Bowman Springs Plw.(S)	12/29	9	2.5	5.2	--
Bowman Springs Plw.(M)	12/29	--	2.4	6.3	--
Butte Creek Summit	N/R			0.0	--
Emigrant Springs	12/29	2	0.5	4.7	2.6
Emigrant Springs Plw.(S)	12/29	2	0.5	5.2	--
Emigrant Springs Plw.(M)	12/29	--	0.0	--	--
High Ridge Pillow(T)	12/31	--	6.1	--	--
High Ridge Pillow(S)	1/2	28	7.6	13.6	14.4
High Ridge Pillow(M)	1/2	--	5.8	9.2	13.7 ^b
Lucky Strike	12/29	11	2.7	6.4	--
Lucky Strike Pillow (T)	12/29	--	1.5	--	--
Lucky Strike Pillow (S)	12/29	8	1.8	5.5	--
Lucky Strike Pillow (M)	12/29	--	0.6	6.5	--
Madison Butte Pillow (T)	----				
Madison Butte Pillow (S)	12/29	4	1.1	4.3	--
Madison Butte Pillow (M)	12/29	--	0.5	4.2	--
Meacham	12/29	5	1.3	4.9	3.5
Tollgate	12/29	26	7.6	12.6	9.9
UPPER JOHN DAY WATERSHEDS					
Anthony Lake	12/27	28	8.0	8.7	11.1
Arbuckle Mountain	12/29	14	3.3	5.4	1.5 ^b
Arbuckle Mountain Plw.(T)	12/29	--	7.1	--	--
Arbuckle Mountain Plw.(S)	12/29	26	6.6	7.0	--
Arbuckle Mountain Plw.(M)	12/29	--	8.2	5.8	--
Blue Mountain Springs	1/2	24	5.6	6.1	6.5
Blue Mtn. Spgs. Plw.(T)	12/31	--	5.9	--	--
Blue Mtn. Spgs. Plw.(S)	1/2	24	6.0	6.0	6.6 ^b
Blue Mtn. Spgs. Plw.(M)	1/2	--	4.9	6.2	5.4 ^b
Blue Mountain Summit	12/26	15	3.2	3.3	3.5
Butte Creek Summit	N/R			0.0	--
Derr		e			
Derr Pillow (T)		e			
Derr Pillow (S)		e			
Derr Pillow (M)		e			
Gold Center	12/26	20	4.7	5.8	5.0 ^b
Gold Center Plw.(T)	----				
Gold Center Plw.(S)	12/26	16	3.8	5.0	--
Gold Center Plw.(M)	12/26	--	2.6	4.0	--
Izee Summit	1/3	14	4.0	3.7	3.2
Lucky Strike	12/29	11	2.7	6.4	--
Lucky Strike Plw.(T)	12/29	--	1.5	--	--
Lucky Strike Plw.(S)	12/29	8	1.8	5.5	--
Lucky Strike Plw.(M)	12/29	--	0.6	6.5	--
Marks Creek	1/7	TR	0.1	0.4	2.1 ^b
Ochoco Meadows		e			
Ochoco Mdws. Plw.(T)		e			
Ochoco Mdws. Plw.(S)		e			
Ochoco Mdws. Plw.(M)		e			
Olive Lake *		e			
Schoolmarm	12/29	4	1.2	2.4	1.6
Snow Mountain		e			
Snow Mountain Plw.(T)		e			
Snow Mountain Plw.(S)		e			
Snow Mountain Plw.(M)		e			
Starr Ridge	1/2	9	3.7	3.7	2.6 ^b
Starr Ridge Plw.(T)	----				
Starr Ridge Plw.(S)	1/2	10	4.0	--	--
Starr Ridge Plw.(M)	----				
Tipton	12/26	15	3.5	4.0	4.7
Tipton Pillow (T)	12/26	--	3.7	--	--
Tipton Pillow (S)	12/26	18	4.0	5.0	6.6 ^b
Tipton Pillow (M)	----				

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. C
UPPER DESCHUTES, CROOKED WATERSHEDS					
Bald Peter	12/27	31	8.2	5.4	13.1 ^b
Caldwell Ranch		e			
Cascade Summit	12/27	23	5.6	5.7	11.1
Cascade Summit Plw.(S)	12/27	31	7.4	5.5	--
Cascade Summit Plw.(M)	12/27	--	5.4	--	--
Chemult Alternate	1/7	12	4.4	0.6	4.9 ^b
Chemult Alt. Plw.(S)	----				
Chemult Alt. Plw.(M)	----				
Derr		e			
Derr Pillow (T)		e			
Derr Pillow (S)		e			
Derr Pillow (M)		e			
Hogg Pass	12/28	22	5.4	7.9	14.8
Hogg Pass Pillow (T)	12/28	--	6.3	--	--
Hogg Pass Pillow (S)	12/28	25	6.5	9.2	--
Hogg Pass Pillow (M)	12/28	--	6.2	7.1	--
Hungry Flat	1/2	5	1.0	1.5	3.3 ^b
Irish-Taylor Pillow(T)		e			
Irish-Taylor Pillow(S)		e			
Irish-Taylor Pillow(M)		e			
Lionshead *	12/28	6	1.6	--	--
Marks Creek	1/7	TR	0.1	0.4	2.1 ^b
New Crescent Lake		e			
New Crescent Lake Plw.(S)		e			
New Crescent Lake Plw.(M)		e			
New Dutchman Flat #2	1/2	50	18.8	10.5	22.5 ^b
Ochoco Meadows		e			
Ochoco Meadows Plw.(T)		e			
Ochoco Meadows Plw.(S)		e			
Ochoco Meadows Plw.(M)		e			
Racing Creek	12/27	11	2.2	3.6	5.4 ^b
Snow Mountain		e			
Snow Mountain Plw.(T)		e			
Snow Mountain Plw.(S)		e			
Snow Mountain Plw.(M)		e			
Summit Lake Pillow(T)		e			
Summit Lake Pillow(S)		e			
Summit Lake Pillow(M)		e			
Tamarack		e			
Tangent	1/2	25	6.5	3.3	9.2
Three Creek Butte		e			
Three Creek Meadow		e			
Three Creek Mdw. Plw.(T)		e			
Three Creek Mdw. Plw.(S)		e			
Three Creek Mdw. Plw.(M)		e			
Waldo Lake		e			
Whitewater Meadow *	12/28	4	0.8	--	--
HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS					
Brooks Meadow		e			
Clear Lake	12/27	5	1.0	0.8	3.3
Clear Lake Pillow(S)	12/27	10	2.8	2.5	--
Clear Lake Pillow(M)	----				
Clear Lake Expt.	12/27	10	2.8	2.5	5.7
Greenpoint		e			
Greenpoint Pillow(T)		e			
Greenpoint Pillow(S)		e			
Greenpoint Pillow(M)		e			
Mt. Hood Test Site(T)	1/2	--	18.8	11.5	24.3 ^b
Mt. Hood Test Site(S)	12/27	54	20.4	15.8	21.2 ^b
Mt. Hood Test Site(M)	----				
Mud Ridge Pillow(T)	12/27	--	5.9	--	--
Mud Ridge Pillow(S)	12/27	25	6.5	4.5	11.3
Mud Ridge Pillow(M)	12/27	--	6.2	4.9	--
Red Hill		e			
Red Hill Pillow(T)		e			
Red Hill Pillow(S)		e			
Red Hill Pillow(M)		e			
Still Creek	12/28	16	3.8	3.9	8.5
Switchback		e			
Tilly Jane		e			

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW		THIS YEAR			PAST RECORD		SNOW		THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)		DRAINAGE BASIN and/or SNOW COURSE	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)			
				Last Yr.	Ave. C					Last Yr.	Ave. C		
LOWER COLUMBIA WATERSHED						WILLAMETTE WATERSHEDS (CONT.)							
Blazed Alder Pillow(T)	----					Salt Creek Falls	12/27	6	0.8	1.9	5.6		
Blazed Alder Pillow(S)	----					Salt Creek Falls Plw.(S)	12/27	14	3.5	--	--		
Blazed Alder Pillow(M)	----					Salt Creek Falls Plw.(M)	12/27	--	2.2	--	--		
Mt. Hood Test Site(T)	1/2	--	18.8	11.5	24.3 ^b	Santiam Junction	12/28	13	2.5	5.5	9.3		
Mt. Hood Test Site(S)	12/27	54	20.4	15.8	21.2 ^b	Santiam Junction Plw.(T)	12/28	--	3.7	--	--		
Mt. Hood Test Site(M)	----					Santiam Junction Plw.(S)	12/28	16	3.4	5.2	--		
Mud Ridge Pillow(T)	12/27	--	5.9	--	--	Santiam Junction Plw.(M)	12/28	--	4.1	4.1	--		
Mud Ridge Pillow(S)	12/27	25	6.5	4.5	--	Seine Creek Pillow(T)	1/2	-	0.0	--	--		
Mud Ridge Pillow(M)	12/27	--	6.2	4.9	--	Seine Creek Pillow(S)	----						
No. Fork Res. (T)	12/31	--	1.7	6.0	--	Seine Creek Pillow(M)	----						
No. Fork Res. (S)	----					Still Creek	12/28	16	3.8	3.9	8.5		
No. Fork Res. (M)	----					Summit Lake Pillow(T)	e						
Still Creek	12/28	16	3.8	3.9	8.5	Summit Lake Pillow(S)	e						
WILLAMETTE WATERSHEDS						Summit Lake Pillow(M)	e						
Cascade Summit	12/27	23	5.6	5.7	11.1	Timothy Lake	N/R			--	6.0 ^b		
Cascade Summit Pillow(T)	----					Waldo Lake	e						
Cascade Summit Pillow(S)	12/27	31	7.4	5.5	--	Weaver Creek	12/26	0	0.0	0.1	0.4 ^b		
Cascade Summit Pillow(M)	12/27	--	5.4	--	--	White Branch Slide	1/2	TR	0.1	1.6	2.8		
Champion	12/26	26	4.4	4.2	12.4	Whitewater Bridge	12/28	0	0.0	1.2	2.1 ^b		
Clackamas Lake	e					ROGUE, UMPQUA WATERSHEDS							
Clackamas Lake Plw.(S)	e					Althouse	e						
Clackamas Lake Plw.(M)	e					Annie Spring	1/3	61	16.6	4.4	17.6		
Clear Lake	12/27	5	1.0	0.8	3.3	Beaver Dam Creek	12/31	17	4.5	1.3	6.1		
Clear Lake Pillow(S)	12/27	10	2.8	2.5	--	Big Red Mountain	e						
Clear Lake Pillow(M)	----					Big Red Mountain Plw.(T)	e						
Clear Lake Expt.	12/27	10	2.8	2.5	5.7	Big Red Mountain Plw.(S)	e						
Daly Lake Plw. (T)	----					Big Red Mountain Plw.(M)	e						
Daly Lake Plw. (S)	12/26	7	1.2	--	--	Billie Creek Divide	12/28	27	6.0	2.9	8.6		
Daly Lake Plw. (M)	12/26	--	1.7	--	--	Billie Cr. Div. Pillow(T)	12/28	--	7.0	--	--		
Dead Horse Grade	1/2	3	1.3	4.7	6.0	Billie Cr. Div. Pillow(S)	12/28	29	7.7	1.0	--		
Golden Curry Creek	12/26	0	0.0	0.1	2.2	Billie Cr. Div. Pillow(M)	12/28	--	6.1	3.2	--		
Hogg Pass	12/28	22	5.4	7.9	14.8	Caliban	e						
Hogg Pass Pillow(T)	12/28	--	6.3	--	--	Caliban (Alternate)	e						
Hogg Pass Pillow(S)	12/28	25	6.5	9.2	--	Champion	12/26	26	4.4	4.2	12.4		
Hogg Pass Pillow(M)	12/28	--	6.2	7.1	--	Cold Springs Camp	e						
Holland Meadows Plw.(S)	N/R					Cold Springs Camp Plw.(T)	e						
Holland Meadows Plw.(M)	N/R					Cold Springs Camp Plw.(S)	e						
Jump Off Joe Pillow(T)	12/28	--	2.1	--	--	Cold Springs Camp Plw.(M)	e						
Jump Off Joe Pillow(S)	12/28	12	2.0	2.1	--	Deadwood Junction	12/31	14	3.9	1.5	4.3 ^b		
Jump Off Joe Pillow(M)	12/28	--	1.2	1.0	--	Diamond-Crater Summit	12/27	31	7.0	2.5	11.7		
Laying Creek	12/26	0	0.0	0.0	--	Diamond Lake	12/27	15	3.7	2.7	7.6		
Little Meadows Plw.(T)	----					Diamond Lake Pillow(S)	12/27	16	3.4	2.3	--		
Little Meadows Plw.(S)	12/26	15	5.0	--	--	Diamond Lake Pillow(M)	12/27	--	1.6	--	--		
Little Meadows Plw.(M)	----					Fish Lake	12/28	15	5.5	2.1	5.5 ^b		
Lost Creek Ranch	1/2	0	0.0	0.0	1.8	Fish Lake Pillow(T)	----						
Lund Park	12/26	0	0.0	0.0	--	Fish Lake Pillow(S)	12/28	16	7.0	2.2	--		
Marion Forks	12/28	TR	0.1	1.7	4.5	Fish Lake Pillow(M)	12/28	--	0.5	--	--		
Marion Forks Pillow(T)	----					Fourmile Lake	e						
Marion Forks Pillow(S)	12/28	TR	0.1	1.5	--	Fourmile Lake Pillow(T)	e						
Marion Forks Pillow(M)	12/28	--	0.8	3.6	--	Fourmile Lake Pillow(S)	e						
Marys Peak	e					Fourmile Lake Pillow(M)	e						
McCredie Springs	12/27	0	0.0	0.0	0.5 ^b	Grayback Peak	e						
McKenzie	1/2	26	8.5	10.7	19.3	Howard Prairie Reservoir	12/31	16	3.7	0.7	4.0		
McKenzie Pillow(S)	1/2	22	7.3	8.7	--	Hyatt Prairie	12/31	13	3.2	1.2	4.0		
McKenzie Pillow(M)	----					Hyatt Prairie Pillow(T)	----						
Mt. Hood Test Site(T)	1/2	--	18.8	11.5	24.3 ^b	Hyatt Prairie Pillow(S)	----						
Mt. Hood Test Site(S)	12/27	54	20.4	15.8	21.2 ^b	Hyatt Prairie Pillow(M)	12/31	--	2.4	1.7	--		
Mt. Hood Test Site(M)	----					King Mountain #1	12/26	19	4.2	0.0	5.7 ^b		
Peavine Ridge Pillow(T)	----				4.9 ^b	King Mountain #2	12/26	19	4.0	0.0	3.6 ^b		
Peavine Ridge Pillow(S)	----			3.0	--	King Mountain #2 Plw.(T)	----						
Peavine Ridge Pillow(M)	----					King Mountain #2 Plw.(S)	----						
Railroad Overpass	12/27	0	0.0	0.0	1.3 ^b	King Mountain #2 Plw.(M)	----						
Railroad Overpass Plw.(T)	----					King Mountain #3	12/26	10	2.2	0.0	1.9 ^b		
Railroad Overpass Plw.(S)	12/27	0	0.0	0.0	--	King Mountain #4	12/26	3	0.8	0.0	0.2 ^b		
Railroad Overpass Plw.(M)	12/27	--	0.0	0.0	--	King Mountain #5	12/26	0	0.0	0.0	0.1 ^b		
Roaring River Plw.(T)	----					King Mountain #6	12/26	0	0.0	0.0	0.1 ^b		
Roaring River Plw.(S)	12/26	20	5.2	--	--	Little Red Mountain	e						
Roaring River Plw.(M)	12/26	--	4.0	--	--	Mt. Ashland Switchback	e						
Saddle Mtn. Pillow(T)	12/31	--	1.2	--	--	Mule Creek	12/27	13	2.1	0.0	4.6 ^b		
Saddle Mtn. Pillow(S)	----					North Umpqua	12/28	9	2.7	2.6	6.4		
Saddle Mtn. Pillow(M)	----			0.0	--	Page Mountain	e						
						Park Headquarters	1/2	77	21.3	8.8	25.2		

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 1

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
ROGUE, UMPQUA WATERSHEDS(CONT.)					
Red Butte #1	12/27	11	2.2	1.3	5.2b
Red Butte #2	12/27	12	3.2	0.5	3.0
Red Butte #3	12/27	6	2.0	0.0	1.8b
Red Butte #4	12/27	0	0.0	0.0	1.1b
Red Butte #5	12/27	0	0.0	0.0	1.5b
Red Butte #6	12/27	0	0.0	0.0	0.4b
Seven Mile		e			
Seven Mile Pillow(T)		e			
Seven Mile Pillow(S)		e			
Seven Mile Pillow(M)		e			
Silver Burn	12/31	16	4.0	--	6.1
Siskiyou Summit	12/28	13	3.0	0.1	3.2b
Ski Bowl Road		e			
South Fork Canal	12/31	TR	0.1	--	2.0
Trap Creek	12/28	8	1.7	2.0	5.6
KLAMATH WATERSHEDS					
Annie Spring	1/3	61	16.6	4.4	17.6
Billie Creek Divide	12/28	27	6.0	2.9	8.6
Billie Cr. Div. Plw.(T)	12/28	--	7.0	--	--
Billie Cr. Div. Plw.(S)	12/28	29	7.7	1.0	--
Billie Cr. Div. Plw.(M)	12/28	--	6.1	3.2	--
Chemult Alternate	1/7	12	4.4	0.6	--
Chemult Alternate Plw.(S)	----				
Chemult Alternate Plw.(M)	----				
Chiloquin (PP&L)	N/R			--	0.5b
Cold Springs Camp		e			
Cold Spgs. Camp Plw.(T)		e			
Cold Spgs. Camp Plw.(S)		e			
Cold Spgs. Camp Plw.(M)		e			
Crazyman Flat *		e			
Crowder Flat (Calif.) *		e			
Crystal (PP&L)	12/31	9	3.1	0.1	4.1b
Diamond-Crater Summit	12/27	31	7.0	2.5	11.7
Dog Hollow *		e			
Finley Corrales *		e			
Fort Klamath (PP&L)	12/31	6	1.9	0.0	1.8b
Fourmile Lake		e			
Fourmile Lake Pillow(T)		e			
Fourmile Lake Pillow(S)		e			
Fourmile Lake Pillow(M)		e			
Gerber	1/1	4	1.5	0.0	1.1
Harriman (PP&L)	12/31	4	1.6	0.2	2.3b
Howard Prairie	12/31	16	3.7	0.7	4.0
Hyatt Prairie Reservoir	12/31	13	3.2	1.2	4.0
Hyatt Prairie Res.Plw.(T)	----				
Hyatt Prairie Res. Plw.(S)	----				
Hyatt Prairie Res.Plw.(M)	12/31	--	2.4	1.7	--
Kirk (PP&L)	12/31	9	2.4	0.1	3.4b
Park Headquarters	1/2	77	21.3	8.8	25.2
Quartz Mountain	12/27	19	4.0	0.3	2.3
Quartz Mountain Ext.	----				
Quartz Mtn. Pillow(T)	----				
Quartz Mtn. Pillow(S)	12/27	15	4.2	--	--
Quartz Mtn. Pillow(M)	12/27	--	2.6	--	--
Seven Mile		e			
Seven Mile Pillow(T)		e			
Seven Mile Pillow(S)		e			
Seven Mile Pillow(M)		e			
State Line (Calif.) *		e			
Strawberry		e			
Strawberry Pillow(S)		e			
Strawberry Pillow(M)		e			
Summer Rim *		e			
Summer Rim		e			
Summer Rim Pillow(T)		e			
Summer Rim Pillow(S)		e			
Summer Rim Pillow(M)		e			
Sycan Flat *		e			
Taylor Butte	1/2	9	2.6	0.4	1.9
Taylor Butte Pillow(T)	12/31	--	3.7	--	--
Taylor Butte Pillow(S)	1/2	12	2.3	0.2	--
Taylor Butte Pillow(M)	1/2	--	3.0	0.0	--

SNOW

DRAINAGE BASIN and/or SNOW COURSE	THIS YEAR			PAST RECORD	
	Date of Survey	Snow Depth (In.)	Water Cont. (In.)	Water Content (Inches)	
				Last Yr.	Ave. ^c
LAKE COUNTY, GOOSE LAKE WATERSHEDS					
Adin Mountain (Calif.)		e			
Bald Mountain (Nev.)		e			
Bear Flat Meadow *		e			
Camas Creek #1	12/28	18	4.3	1.5	3.4
Camas Creek #2	12/28	24	5.4	1.7	--
Cedar Pass (Calif.)		e			
Colvin Creek *		e			
Cox Flat *		e			
Crowder Flat (Calif.) *		e			
Dismal Swamp (Calif.) *		e			
Finley Corrales *		e			
Hart Mountain *		e			
Little Bally Mtn.(Nev.) *		e			
Mt. Bidwell (Calif.)		e			
North Star (Calif.)		e			
Patton Meadows *		e			
Quartz Mountain	12/27	19	4.0	0.3	2.3
Quartz Mountain Ext.	----				
Quartz Mountain Plw.(T)	----				
Quartz Mountain Plw.(S)	12/27	15	4.2	--	--
Quartz Mountain Plw.(M)	12/27	--	2.6	--	--
Rogger Meadows *		e			
Sherman Valley *		e			
Silver Creek	12/27	4	1.0	0.2	1.0
Silver Creek Pillow(S)	N/R				
Silver Creek Pillow(M)	N/R				
State Line (Calif.) *		e			
Strawberry		e			
Strawberry Pillow(S)		e			
Strawberry Pillow(M)		e			
Summer Rim *		e			
Summer Rim		e			
Summer Rim Pillow(T)		e			
Summer Rim Pillow(S)		e			
Summer Rim Pillow(M)		e			
Sycan Flat *		e			
HARNEY BASIN WATERSHEDS					
Blue Mountain Springs	1/2	24	5.6	6.1	6.5
Blue Mtn. Spgs. Plw.(T)	12/31	--	5.9	--	--
Blue Mtn. Spgs. Plw.(S)	1/2	24	6.0	6.0	6.6 ^b
Blue Mtn. Spgs. Plw.(M)	1/2	--	4.9	6.2	5.4 ^b
Buck Pasture *		e			
Buckskin Lake *		e			
Call Meadows *		e			
Delintment Lake		e			
Denio Creek *		e			
Disaster Peak (Nev.)		e			
Emigrant Butte		e			
Fish Creek *		e			
Fish Creek		e			
Fish Creek Pillow(T)		e			
Fish Creek Pillow(S)		e			
Fish Creek Pillow(M)		e			
Hart Mountain *		e			
Idlewild Camp Alt.	1/7	9	2.2	1.6	2.4 ^b
Izee Summit	1/3	14	4.0	3.7	3.2
Lake Creek R.S.	1/2	20	5.2	4.7	4.2
Lake Creek R.S. Plw.(T)	12/31	--	6.2	--	--
Lake Creek R.S. Plw.(S)	1/2	24	6.0	4.5	--
Lake Creek R.S. Plw.(M)	1/2	--	3.5	2.9	--
Oregon Canyon *		e			
Rock Spring	1/4	13	3.4	3.2	2.1
Rock Spring Pillow(T)	----				
Rock Spring Pillow(S)	1/4	11	3.0	3.0	--
Rock Spring Pillow(M)	----			1.3	--
Silvies *		e			
Silvies		e			
Silvies Pillow(T)		e			
Silvies Pillow(S)		e			
Silvies Pillow(M)		e			
Snow Mountain		e			
Snow Mountain Plw.(T)		e			
Snow Mountain Plw.(S)		e			
Snow Mountain Plw.(M)		e			
Starr Ridge	1/2	9	3.7	3.7	2.6 ^b
Starr Ridge Pillow(T)	----				
Starr Ridge Pillow(S)	1/2	10	4.0	--	--
Starr Ridge Pillow(M)	----				
Stinking Water	12/28	14	2.0	0.6	1.5
Trout Creek		e			
"V" Lake		e			

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 2

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION		PAST RECORD	
		Date of Reading	Precipitation	Last Year	Average ^c
Arbuckle Mountain (Morrow County)	5400	From 9/12 To 12/29	9.75"		
Beaver Reservoir (Union County)	5150	From 6/26 To 12/27	18.72"		
Billie Creek Divide (Jackson County)	5310	From 8/30 To 12/28	20.28"		
Blue Mountain Springs (Grant County)	5900	From 10/24 To 1/2	6.96"		
Bowman Springs (Union County)	4580	From 6/79 To 12/29	8.88"		
Clear Lake (Wasco County)	3500	From 9/5 To 12/27	14.04"		
County Line (Umatilla County)	4800	From 6/21 To 12/29	8.88"		
Daly Lake (Linn County)	3600	From 10/19 To 12/26	19.92"		
Diamond Lake (Douglas County)	4600	From 8/2 To 12/27	17.64"		
Eilertson Meadow (Baker County)	5400	From 6/27 To 12/26	11.76"		
Emigrant Springs (Umatilla County)	3925	From 6/19 To 12/29	15.84"		
Fish Lake (Jackson County)	4665	From 8/1 To 12/28	18.72"		
Gold Center (Grant County)	5340	From 6/21 To 12/26	9.72"		
High Ridge (Umatilla County)	4150	From 6/20 To 1/2	13.20"		
Hogg Pass (Jefferson County)	4755	From 9/26 To 12/28	24.96"		
Hyatt Prairie (Jackson County)	4900	From 8/1 To 12/31	15.12"		
Jump Off Joe (Linn County)	3400	From 9/27 To 12/28	25.08"		
Lake Creek (Grant County)	5120	From 10/31 To 1/2	5.52"		
Little Meadows (Linn County)	4000	From 10/2 To 12/26	30.84"		
Lucky Strike (Umatilla County)	5050	From 6/21 To 12/29	11.25"		
Madison Butte (Morrow County)	5250	From 9/12 To 12/29	6.24"		
Marion Forks (Linn County)	2730	From 9/25 To 12/28	24.36"		

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

BASIC DATA SUPPLEMENT 2

PRECIPITATION (Inches)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION		PAST RECORD	
		Date of Reading	Precipitation	Last Year	Average ^c
Mt. Hood Test Site (Clackamas County)	5400	From 11/15 To 12/27	17.62"		
Mud Ridge (Clackamas County)	3800	From 10/19 To 12/27	16.92"		
Quartz Mountain (Lake County)	6300	From 7/13 To 12/27	10.20"		
Railroad Overpass (Lane County)	2750	From 9/21 To 12/27	18.00"		
Roaring River (Lane County)	4900	From 6/13 To 12/26	18.36"		
Rock Springs (Grant County)	5100	From 7/11 To 1/4	6.84"		
Salt Creek Falls (Lane County)	4000	From 10/4 To 12/27	23.04"		
Santiam Junction (Lane County)	3750	From 11/14 To 12/28	12.84"		
Starr Ridge (Grant County)	5156	From 7/10 To 1/2	9.96"		
Taylor Butte (Klamath County)	5040	From 7/11 To 1/2	8.64"		
Tipton (Baker County)	5100	From 6/22 To 12/26	8.88"		

(a) Estimated. (b) 1963-77 adjusted average. (c) 1963-77, 15 year average. (d) Corrected to natural flow. (e) Not scheduled.

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon Department Of Water Resources
- Soil and Water Conservation Districts of Oregon

COUNTY

- Douglas County Water Resources Survey

FEDERAL

- Department of Agriculture
 - Cooperative Extension Service
 - Forest Service
 - Soil Conservation Service
- Department of Commerce
 - NOAA, National Weather Service
- Department of the Interior
 - Bonneville Power Administration
 - Bureau of Land Management
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
- Department of National Defense
 - Corps of Army Engineers

PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific National

MUNICIPALITIES

- City of Baker
- City of La Grande
- City of Portland
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Hood River Irrigation District
- Jordan Valley Irrigation District
- Juniper Flat Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- Middle Fork Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale - Oregon Irrigation District
- Warm Springs Irrigation District

PRIVATE ORGANIZATIONS

- The Crag Rats, Hood River, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1220 S.W. THIRD AVE.
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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

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